Simulation and Validation of Therapeutic Hypothermia as an Adjuvant Treatment in ST Segment Elevation Myocardial Infarction

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Purpose: Therapeutic hypothermia (TH) reduces the damage by ischemic / reperfusion syndrome in cases of cardiac arrest, in which its application is already widely established and carried out in centers of excellence. However its use in patients with ST segment elevation myocardial infarction (STEMI) is still scarce. The simulation decreases the gap between what is taught in theory and its application in professional practice. The aim of the trial was the development of a simulation protocol and training of the multidisciplinary team to perform therapeutic hypothermia as an adjunctive treatment in patients with STEMI, and validation of the method by applying in real cases.

Materials and Methods: Use of modern mannequins with realistic simulation situations and different scenarios for the treatment of patients with STEMI undergoing therapeutic hypothermia as an adjunctive treatment, from the emergency room, through the cath lab, and to the intensive care unit (ICU). There were 36 multidisciplinary professionals doing the training among realistic simulation with modern mannequins and real scenarios in sectors of the hospital where the real patients would be treated.

Results: The focus of simulation and training was the logistics optimization and debriefing with strategies to reduce waste of time in the patient's transportation between the various departments, and avoiding excessive reheating during transport between sectors. There was absolute success in the realization of therapeutic hypothermia and validation of the method in real life, with the application of knowledge and logistics in 10 real patient without any delay in the door-to-balloon time for primary angioplasty, which occurred in a timely manner (less than 90 minutes), and maintenance of therapeutic hypothermia in the ICU successfully.

Conclusions: Simulation was an important tool related to the training and optimization of health professionals skills, and improving the multidisciplinary team to perform therapeutic hypothermia in STEMI. The use of real scenarios and debriefing were critical to the successful implementation of TH in practice. After simulation and training, the protocol and the method were validated with application of TH in real life successfully and without any delays.

Anterior wall infarct
- Late gadolinium -